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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,229	12/22/2003	Akihito Yamanouchi	TIC-0055	7668

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EXAMINER	
WEINSTEIN, LEONARD J	

ART UNIT	PAPER NUMBER
3746	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,229	YAMANOUCHI ET AL.	
	Examiner	Art Unit	
	Leonard J. Weinstein	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/24/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe 5,562,426 that teaches the invention substantially as claimed: a variable displacement scroll compressor and a mechanism for varying the displacement of said scroll compressor and further comprised of a movable scroll member 8; a fixed scroll member 3, compression chambers C being defined by the movable scroll member and the fixed scroll member, said compression chambers C reducing in volume and compressing a gas as they are moved radially and inwardly by orbiting the movable scroll member relative to the fixed scroll member (col. 4 ll. 45-54); a variable displacement mechanism including a by-pass passage provided for interconnecting the compression chamber C with the suction pressure region, element S and E via element 3d; the by-pass passage including a first valve hole 3e; a valve chamber, E and 13, provided for communicating with the first valve hole 3e, the valve chamber, E and 13, forming a valve seat surface around an opening of the first valve hole with the recess in element 3 that houses element 12, and is bordered by element 3a which, is located above element 3d; a valve plate 12 having a section of it's outer circumference in contact with element 3d and facing the valve seat, considered to be element 3a, when the plate is in its closed position. In a state where spring 13e is not subject to an opposing downward force, the circumferential section of element 12, formerly in contact with the valve seat 3a, has been

moved to a location where it is not facing element 3d and does not have the same area in contact with element 3a; a valve plate 12 having an end surface that faces the valve seat surface 3a, is arranged in the valve chamber so as to selectively move between an open position, where the end surface is separated from the valve seat surface to open the first valve hole, and a close position, where the end surface contacts the valve seat surface to close the first valve hole 3e; and an actuator 13 actuating the valve plate; a by-pass passage configured to continuously interconnect the compression chamber C with the suction pressure region, S and E via 3d, until the compression chamber C, in the process of volume reduction reduces in volume to a predetermined value in a state where the valve plate 12 is located at the open position (col. 6 ll. 59-67, col. 7 ll. 1-7). Further a first valve hole 3e partially constituting the by-pass passage on a side of the compression chamber C with respect to the valve chamber, E and 13, the first valve hole being plurally 3e provided, shown on Figure 2, and each interconnecting the compression chamber C with the valve chamber, E and 13, with elements 12a at a position different from each other, wherein different portions of the end surface of the valve plate 12 simultaneously are opening and closing the plurality of first valve holes 3e; and the valve plate 12 simultaneously opens and closes a second valve hole 12a that partially constitutes the by-pass passage on a side of the suction pressure region, S and E via 3d, with respect to the valve chamber, E and 13; a fixed scroll member 3 having a fixed base plate 3a and a fixed spiral wall 3b that extends from the fixed base plate 3a, the valve chamber, E and 13, being defined the back surface of the fixed base plate 3a, the valve seat surface 3a being formed by the fixed base plate 3a, and the valve plate 12 being arranged along the fixed base plate 3a; a discharge chamber D defined in the scroll type compressor, the valve plate 12 having one of a complete annular shape and an incomplete annular shape that is an annular shape of which a part is

removed therefrom 13f, and a discharge passage 2a being formed at a center of the valve plate 12 for discharging the compressed gas from the compression chamber C to the discharge chamber D. Further Watanabe teaches a valve plate 12 being arranged to divide the valve chamber, E and 13, into a communication chamber, area immediately between elements 13 and 3, on the side of the first valve hole 3e and a back pressure chamber, 13d and 13f, on a side opposite to the side of the first valve hole 3e, the communication chamber as stated, partially constituting the by-pass passage, and an actuator 13b including an urging spring 13e that urges the valve plate 12 toward the open position, a first control passage 13g that interconnects the back pressure chamber, 13d and 13f, with the discharge pressure region D, and a control valve 16 that regulates an opening degree 13c of the first control passage 13g based on an external command 32c (col. 7 ll. 9-24); the valve plate located at the closed position when the control valve 16 opens the first control passage 13g, and in the open position when the control valve 16 closes the first control passage 13g (col. 6 ll. 59-67 and col. 7 ll. 1-24); the actuator 13 also includes a second control passage, elements 13d, 16f, 16h, 20d and 20e, that interconnects the suction pressure region, S and E via 3d,with the back pressure chamber, 13d and 13f, the control valve 16 regulating an opening degree of the second control passage based on the external command 32c (col. 5 ll. 65-77, and col. 6 ll. 1-13), and the valve plate being located at the open position when the control valve opens the second control passage with element 16h.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe 5,562,426 in view of Sato 4,890,987. Watanabe teaches all the limitations as substantially claimed as stated above with the exception of a seal member arranged on an end surface of the valve plate and a member on the valve seat surface, as is taught by Sato. Figure 9 of Sato teaches a moving plate of a scroll compressor 38 having sealing components 305 and 306, a' and b' that receive seal element 213 located on a stationary scroll member. Combining the valve plate 12 and element 3a of the stationary scroll member 3, of Watanabe with Sato would provide a seal member on the out surfaces of both a valve plate and valve seat surface. This combination would allow for the valve plate to lock in either an open or close position, dependent upon its location within the range of motion of the valve plate. The combination would further create a quantitative resistive force providing enhanced control of the motion of the valve plate, and communication between chambers (col. 2 ll. 1-14). Additionally Sato teaches that the seal members decrease pressure loss when the displacement of the compressor is reduced (col. 3 ll. 24-28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Watanabe with Sato to determine the amount of pressure required to generate an associated force capable of switching the position

of a valve plate, provide enhanced control the motion of a valve plate and fluid communication between chambers, and reduce pressure loss due to varying the displacement of a compressor, Sato col. 3 ll. 24-28.

5. Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe '426 in view of Sakai 6,234,769. Watanabe teaches all the limitations as substantially claimed and as stated above for a compressor for an automobile air conditioning system with the exception of that which Sakai does teach: a scroll compressor being a hybrid type 601 selectively driven by an engine, via element 603, and an electric motor 630. Further Sakai teaches that when the hybrid scroll compressor engaged by a clutch and driven by the engine, any vibration due to the process of engaging the clutch is minimized due a lower torque. This lower torque is a result of the transmission of a rotational force, generated by an electric motor, to the shaft 605. Sakai teaches the inertia moment of the rotational system is reduced with respect to a driving engine and therefore vibration from engaging a clutch is minimized (col. 2 ll. 12-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a hybrid type scroll compressor in order to reduce the vibration associated with engaging a clutch and therefore minimizing the risk of damage to an automobile air conditioning system, Sakai col. 2 ll. 12-18.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and are cited on form 892 herewith.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. Weinstein whose telephone number is 571-272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on 571-272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJW

11/26/06

EHUD GARTENBERG
SUPERVISORY PATENT EXAMINER